AHRQ Quality Indicators^{TM}

Listening Session Summary

In July 2022, the Agency for Healthcare Research and Quality (AHRQ) held a listening session with users of AHRQ Quality Indicators (QIs), measures of healthcare quality designed for use by program managers, researchers, and others interested in healthcare quality measurement. AHRQ's QI software is available at no cost to users at https://qualityindicators.ahrq.gov.

The purpose of the session was to gain insight into the user experience of the QI software and the AHRQ QIs themselves. The following summary incorporates oral and written comments from the listening session.

I. How QIs Are Used

Participants shared that they use Quality Indicators to examine patient safety, to identify documentation and coding opportunities, for quick reporting, to contribute to State data repositories, and as part of patient safety improvement programs. In addition, third-party entities also use QIs to create quality reports.

II. Themes and Observations that Emerged from the Listening Session

Participants discussed general challenges with the software or with specific measures and offered ideas for additional measures. General issues were related to the overall application and use of measures or to specific software or technical issues. Many of the comments about specific measures focused on Patient Safety Indicator (PSI) 04 Death Rate among Surgical Inpatients with Serious Treatable Complications. Many users suggested this measure did not sufficiently account for conditions present on admission (POA), resulting in lower performance due to trauma patients or those with various acute care conditions. Specific comments on other measures often centered around specific exclusions, issues of timing, or other points that could lead to over-identification of adverse events. One comment focused on a perceived penalization for small hospitals due to weighting, even when there were no adverse events in the PSI composite measure, PSI 90 Patient Safety and Adverse Events Composite.

A. Challenges with QI use

General

Users reported a few general issues related to the use of QIs. One user pointed out that for some Patient Safety Indicators (PSIs), the diagnosis code was not associated with a date, making it difficult to link the complication with qualified procedures. One acute care hospital user suggested that the risk adjustments made by the Centers for Medicare & Medicaid Services (CMS) are a challenge, as were discrepancies in the ICD-10 codes used by AHRQ versus other programs (such as CMS or other patient safety programs).

Two users mentioned issues with the software itself, citing slow running time in one case and challenges with user information technology security permitting the use of AHRQ software in the other.

Specific indicators

There were numerous comments related to specific indicators:

1. **PSI 04 Death Rate among Surgical Inpatients with Serious Treatable Complications**

   More than a dozen users cited challenges using this QI. Specifically, users said that there is no allowance for POA conditions and critically ill patients. Users said that oftentimes, emergent or critically ill cases present with more than one condition, yet there are no real exclusions. Users said this PSI imposes a penalty on treating trauma patients with multiple surgeries. In addition, once the qualification of elective surgery is removed, the numerator and denominator are skewed, according to one user. Users said that trauma hospitals and transfer hubs may be unfairly penalized for undertaking extremely high-risk surgeries. In many cases, these surgeries are last-ditch efforts that are not elective, according to users. Two users stated that sometimes the patient could not have been saved, and there is nothing the clinician could have done differently. Regardless, such cases would be counted and hospital performance on this QI would be lower, users said. Lastly, one user mentioned that CMS may then penalize the hospital based on this measure.

   Users cited the following examples of trauma or critically ill cases that might contribute negatively to this PSI:

   - A hospital gets a patient transfer from an outside hospital, who has a large hemorrhagic stroke. The patient has aspirated with the onset of stroke. Neurosurgery talks with the family, who wants to try everything, so the patient is taken for a craniotomy, even though survival is not expected. The patient is also treated for aspiration pneumonia. The patient eventually expires within a day or two. This case gets coded with pneumonia, but the hemorrhagic stroke is the primary diagnosis, not the pneumonia. However, that patient is now counted in this PSI as a death with potentially treatable pneumonia.

   - A patient comes in with septic shock due to pneumonia (POA). This patient will be included in the PSI, because both pneumonia and sepsis cannot both be the principal diagnosis. However, the pneumonia is the cause of the septic shock. That patient is counted as a death with potentially treatable pneumonia.

2. **PSI 06 Iatrogenic Pneumothorax Rate**

   One user mentioned they had challenges using PSI 06 Iatrogenic Pneumothorax Rate when iatrogenic pneumothorax was not related to the procedure. They said the measure did not account for the timing of pneumothorax, such as when a patient had pneumothorax prior to, not due to, the procedure.

3. **PSI 09 Postoperative Hemorrhage or Hematoma Rate**

   Two users found that the algorithms in the software sometimes flagged safety concerns that were not true safety events, because of the generality of some procedure codes included. For example, they found the measure lacked specificity about timing to identify true events. In some cases, despite the PSI being flagged, the situation did not actually meet the description of a patient safety event.

4. **PSI 10 Postoperative Acute Kidney Injury Requiring Dialysis Rate**

One user commented that PSI 10 Postoperative Acute Kidney Injury Requiring Dialysis Rate posed a challenge, as patients with chronic kidney disease lower than stage 5 are not excluded. Another user also mentioned challenges with this measure, but did not provide details on their concerns.

5. **PSI 12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate**

One user mentioned challenges with PSI 12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate and pneumothorax when it is a hospital-acquired condition. They gave the example that pressure ulcers are not always considered exclusions, and that if transfers have malnutrition, they are unfairly counted.

6. **PSI 15 Unrecognized Abdominopelvic Accidental Puncture or Laceration Rate**

Three users stated that PSI 15 Unrecognized Abdominopelvic Accidental Puncture or Laceration Rate lacked specificity about timing and found that it sometimes flagged events that were not truly patient safety issues. Another user stated that there could be additional procedures or surgeries unrelated to the injury that were identified and repaired in the initial procedure or surgery.

7. **PSI 90 Patient Safety and Adverse Events Composite**

One user inquired about reliability weighting for PSI 90 Patient Safety and Adverse Events Composite. They found that the reliability weighting worked against small hospitals when they had zero events in the 10 measures. They mentioned it was challenging to explain to small hospitals why their zero-event outcomes were calculated as non-zero events in a way that they could understand, or to explain how their reliability weights were assigned.

B. *Ideas for Additional Measures*

Users had several suggestions for additional measures they might find useful. In general, suggestions had to do with broadening to additional areas of care or considering measures related to equity and/or disparities in care.

Specifically, users mentioned a desire for measures to broaden into the areas of maternal health, emergency department (ED) care, primary care, pediatric primary care, mental health, ambulatory care, medication-related adverse outcomes, anesthesia and related complications, home health and hospice care, and obesity.

Around the topic of mental health, one user elaborated that QIs could measure patient experiences in mental health settings and could potentially look to the measures in the Consumer Assessment of Healthcare Providers and Systems (CAHPS) Home & Community-Based Services (HCBS) measure set as a guide.

Regarding the area of equity, users proposed providing measures with an equity lens and considering social risk factors in adjustments. They suggested such measures could be applied broadly or in specific settings, such as for ED or ambulatory care.

Lastly, three additional suggestions were not for specific Qis, but instead a call for resources. One user brought up a need for population-level measures, allowing a more granular description of the underlying health of the population in specific geographic areas, more refined than at the State

level. One user mentioned a desire for tools to communicate with patients regarding these measures, and another user mentioned the need to be able to educate providers on the purpose of specific measures.

III. Questions and Answers

Responses to specific user questions that were raised at the July 2022 Listening Session are available below. Users may always submit questions to QISupport@ahrq.hhs.gov.

Q:	We would love to see the risk-adjustment model for the PSI measures. Is this possible?
A:	The following document provides statistical parameters associated with Patient Safety Indicators (PSI) in v2022 AHRQ QI software. The parameter estimates are based on analysis of the 2019 AHRQ Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID): https://qualityindicators.ahrq.gov/Downloads/Modules/PSI/V2022/Parameter_Estimates_PSI_v2022.pdf
Q:	What is the chance for AHRQ to be able to use other data sources? Outpatient, electronic health records (EHR)?
A:	AHRQ is exploring the ability to link to additional data sources and recognizes the importance of such datasets for future quality measurement.
Q:	We would like AHRQ recommendations for how to stratify/analyze indicators to better identify care/outcome disparities in a standardized way.
A:	AHRQ is actively engaged in exploring ways to incorporate social determinants of health into quality measures. Users can stratify QI rates for different demographic groups using v2022 of the software. In the SAS QI software, users can specify the level of reporting using the CONTROL.sas program and the TYPELVLH parameter variable for each module. Similarly, in WinQI, users can stratify their data by various demographic dimensions. The AHRQ QI software will produce stratified observed rates for any level specified. Risk-adjusted ratios are produced for stratifications that only include race or payer variables; stratifications that use age or sex will only produce observed rates, since these factors are included in risk-adjustment models.
Q:	Please elaborate how COVID cases are considered for PSI calculations by AHRQ and CMS? Do both entities exclude COVID cases from PSI calculations?
A:	Beginning with version 2021, the AHRQ Quality Indicators QI Software provides users the option to exclude COVID-19 discharges from hospital-level indicators, including all PSIs. This option is also available in version 2022 of the software. COVID-19 discharges are identified by any-listed diagnosis code B9729 during the first quarter of 2020, and diagnosis codes U071 and J1282 are used for the second quarter of 2020 and onward. For more information, please see the response to the frequently asked question "Does the v2022 software address the 2019 Novel Coronavirus (COVID-19)?" available at https://qualityindicators.ahrq.gov/faqs?tag=SoftwareReleases-2022-3 For CMS related inquiries please go contact the QualityNet Help Desk by e-mail at qnetsupport@hcqis.org. Typically when a question is submitted to the QualityNet Helpdesk or QualityNet Q&A Tool, it will go into ServiceNow and be routed to the correct contractor. See also https://www.qualitynet.org/support.

Q:	Please clarify the diagnosis-related groups (DRG) that are currently being used, all patients refined (APR) versus Medicare severity (MS). Do CMS and AHRQ use the same versions?
	Major Diagnosis Categories (MDCs) and DRGs derived from the CMS MS-DRG grouper are required inputs to the AHRQ Quality Indicators WinQI and SAS software. The software expects that the MDC and DRG were assigned using the version of the MS-DRG grouper in use at the time of discharge. Beginning with version 2022, the QI software no longer imputes MDC when not present on the input record. See section 14.3 Input Data in the Software Instructions for WinQI at https://qualityindicators.ahrq.gov /Downloads/Software/WinQI/V2022/Software_Inst_WINQI_V2022_July_2022.pdf or section 3.3, Coding of MS-DRG and MDC, in the Software Instructions for SAS QI at https://qualityindicators.ahrq.gov /Downloads/Software/SAS/V2022/Software_Inst_SASQI_v2022_July_2022.pdf APR-DRG values (user-supplied or calculated by the built-in grouper) were used for calculating risk-adjusted rates in earlier software versions, but have since been replaced by AHRQ's Clinical Classifications Software Refined (CCSR) categories. See the Quality Indicators Empirical Methods document at https://qualityindicators.ahrq.gov /Downloads/Resources/Publications/2022/Empirical_Methods_2022.pdf
Q:	Is it possible to receive Technical Specifications in advance of when the software is released?
A:	AHRQ will review the logistics involved in releasing technical specifications ahead of the software.
Q:	Are short educational materials available to help clinicians understand each measure?
	There are many resources available online to help clinicians understand the Quality Measures. You can start by reviewing some case studies that provide information on how organizations, including hospitals and health systems, use the AHRQ QIs to improve their quality of care. https://qualityindicators.ahrq.gov/resources/case_studies Additionally, please review QI the Toolkit, designed to help your hospital understand the AHRQ QIs, specifically the Patient Safety Indicators (PSIs) and Inpatient Quality Indicators (IQIs). • The QI Toolkit serves as an "inventory" from which hospitals can select those tools that are most appropriate for their current quality improvement priorities and capabilities. • Each of the tools is—by design—adaptable to the needs of an individual hospital. https://qualityindicators.ahrq.gov/resources/toolkits Many QI resources are also available on this website, including technical specifications for each measure: https://qualityindicators.ahrq.gov/measures
Q:	Are there issues of software compatibility with electronic medical record systems for coding?
A:	There is a brief period of time between releases when the most recent fiscal year coding updates are not supported in AHRQ QI. Each year, new coding changes and other software updates are incorporated into the AHRQ Quality Indicators software and then released as the most updated version, usually in the summer. The rates for indicators are informally compared from year to year to identify unexpected percentage changes, and the indicators are updated to conform to the yearly changes in ICD-10-CM diagnosis and procedure codes. AHRQ also updates its technical specifications and software annually. Lag in access is attributed to the time it takes to incorporate these new coding updates and validate the

	rates across all indicators due to these coding changes. The timeline to release AHRQ QI products also takes into account the analysis of the coding updates and their impact on each indicator.
	AHRQ is aware of the burden users have in re-running their data and is actively looking to shorten the release cycles in the future. In the meantime, please sign up for the newsletter to be notified on the release dates and other important announcements: https://subscriptions.ahrq.gov/accounts/USAHRQ/subscriber/new?topic_id=USAHRQ_39
Q:	Are security assessments necessary for the use of the QI software?
A:	The AHRQ Quality Indicators Windows Application, WinQI, is free software used for hospitals' planning and to track and improve inpatient quality and patient safety. Depending on how and where the software is installed, there may or may not be a need for security assessments. Below are the rationales for not performing security assessment for this software: 1. WinQI is a Windows-based desktop tool, installed on a standalone desktop that is used to access this application. Therefore, it will be fully installed on organizations' workstations and will follow security polices enforced on those desktops. 2. AHRQ QI software expects data to be fully de-identified (i.e., no personal health information, personally identifiable information, payment card industry data, or confidential data) before being imported. 3. The data is stored locally, and no transfer of data occurs outside of the network. 4. WinQI has no known vulnerabilities, such a log4J. Because of the above rationales, it is not recommended to add an overhead of security assessments for WinQI. However, if your organization must assess the software, please contact the AHRQ QI Support team at QISupport@ahrq.hhs.gov to get help with your assessments.
Q:	Is there a way to review measures to determine whether complications may be associated with qualified procedures?
A:	WinQI provides a mechanism for you to review case details. This report explains exactly why a case was or was not flagged for a particular indicator. To know how to access this report please review the v2022 software instructions document starting at page 117: https://qualityindicators.ahrq.gov/Downloads/Software/WinQI/V2022/Software_Inst_WINQI_V2022_July_2022.pdf This report should explain the indicator logic. If you still need help, please send a request with appropriate data confidentiality protections to QISupport@ahrq.hhs.gov.

IV. Concluding Remarks.

Participants provided invaluable perspective on the day-to-day use of the QI measures. Users identified specific measures that could be improved, offering further insight into the limitations of these indicators in certain environments and opportunities for further research and development. AHRQ has provided responses to many of the comments that emerged at the session in this summary document. We appreciate user participation in this session and encourage our users to reach out with any additional comments or questions at any time to QISupport@ahrq.hhs.gov.

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